What We claim is:

1. A shift actuator for a transmission, which actuates, in a direction of shift, a shift lever for operating a synchronizing device of the transmission, the shift actuator comprising:

a first electromagnetic solenoid and a second electromagnetic solenoid for actuating an operation member coupled to said shift lever in the directions opposite to each other;

each of said first electromagnetic solenoid and said second electromagnetic solenoid comprising a casing, a fixed iron core disposed in said casing, a moving iron core arranged to be allowed to approach, and separate away from, said fixed iron core, an operation rod mounted on said moving iron core to engage with said operation member, and an electromagnetic coil arranged between said casing and said fixed iron core as well as said moving iron core,

wherein a stepped protuberance is formed on either one of the opposing surfaces of said fixed iron core and of said moving iron core, a stepped recess is formed in the other surface to correspond to said stepped protuberance, and a position at which an edge of said protuberance and an edge of said recess become closest to each other is so constituted as to correspond to the synchronizing position of said synchronizing device.

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